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Rosa, 'On the Measurement of Alternating Electromotive Forces of High Potentials'; Bauer, 'On the Results of Simultaneous Magnetic Observations made at various points on May 28, 1900' and Wood 'On a Mica Echelon Spectroscope Grating' are some of the titles, which show that the meeting of this Society was fully as successful as that of Section B. Dr. Bauer's paper brought out the very interesting fact that at the time of the recent solar eclipse there was a distinct variation in the magnetic elements at a number of points on or near the line of totality, and that the change was not simultaneous, but depended upon the time of totality.

To sum up, it may safely be said that the admirable papers and admirable surroundings made the present meeting of the Section B one of the most enjoyable of recent years.

R. A. FESSENDEN,
Secretary.

SCIENTIFIC BOOKS.

The Cell in Development and Inheritance. By EDMUND B. WILSON. Columbia University Biological Series, Vol. IV. Second Edition. Revised and Enlarged. New York and London, The Macmillan Co. 1900. Pp. xxi + 483, with 194 figures in the text. Price, \$3.50.

The appearance of the second edition of this already famous work gives occasion for calling attention not only to the changes which it has undergone, as contrasted with the first edition, but also to its general plan and character.

At the present time the greatest problems of biology are those which center in the life of the animal and plant cell. Assimilation, growth, metabolism, reproduction, inheritance, development and even evolution are subjects upon which the study of the cell has thrown a flood of light. The cell theory has indeed attained a prominence in modern biological work, second only to the evolution theory. The appearance, therefore, of a general work on the cell is of more than ordinary concern, not alone to the biologist, but also to all persons interested in the fundamental problems of biology.

Professor Wilson's work on the cell, the first edition of which appeared in 1896, at once took first rank among books on cytology. It is not only a general summary of the results of cell studies, but also a most important contribution to knowledge. The author has brought together, under one point of view the very many isolated observations and frequently conflicting views of a multitude of writers. In this he has graciously and entirely avoided the old museum idea of collecting material without reference to its use; although he touches upon almost every important work of modern times bearing upon the cell, yet the book is no mere encyclopedia of facts or theories—all is treated in a critical spirit as so much material to be builded into a system. The labor involved in this sifting of literature and collation of results must have been prodigious and all workers in these lines owe Professor Wilson a debt of gratitude for the service which he has thus rendered.

The general plan and scope of the second edition of this work remain unaltered; in fact the subdivisions into chapters and sections remain almost exactly the same as in the first edition. After an introduction in which is given a brief but suggestive sketch of the cell theory and its relation to the evolution theory, there follow in successive chapters: (1) A general sketch of cell structure; (2) cell-division; (3) the germ cells; (4) fertilization of the ovum; (5) oögenesis and spermatogenesis, reduction of the chromosomes; (6) some problems of cell organization; (7) cell chemistry and cell physiology; (8) cell division and development, and finally (9) some theories of inheritance and development. The volume also contains an excellent glossary, a general literature list, and indices of authors and subjects.

The most important changes in the second edition are found in those chapters and sections which deal with the nature and functions of the centrosome. For the past ten years this has been one of the most perplexing problems of cytology. In 1887 both Van Beneden and Boveri maintained that the centrosome was an independent and permanent cell organ, and Boveri held that the most important event in the fertilization of the egg was the addition of

a centrosome to the egg cell, which before the entrance of the spermatozoon lacked a centrosome and was, therefore, incapable of division. Since then a large number of investigators have devoted attention to this subject with more or less conflicting results. In the first edition of his book on the Cell, Professor Wilson took a very positive stand in favor of the hypothesis of Van Beneden and Boveri; in the present edition he takes the much safer ground that the problem is still an open and unsolved one. As to the origin of the cleavage centrosomes he suggests (p. 230 *et passim*) that Boveri's hypothesis may still be maintained in a modified form if we assume that the sperm centrosome gives rise indirectly, through chemical stimuli, to the cleavage centrosomes.

Other important changes are found in the treatment of the structure of protoplasm, the mechanics of mitosis, and chromatic reduction, while minor alterations are found on almost every page. There are about 100 additional pages and more than 50 new figures, while several old figures have been redrawn and improved.

On the whole, the author's temper is much more cautious and judicial than in the first edition, while at the same time there is no loss of that enthusiasm which is the peculiar charm of his writing. The few erroneous statements of the first edition have been entirely rectified, and few, if any, new ones have crept in. Strange to say, however, the typographical errors have increased, though they are still few and for the most part unimportant. Too much praise cannot be given to the mechanical execution of the work. The illustrations are of the highest type of excellence; in fact it is no exaggeration to say that many of the figures are clearer and better than the originals (usually lithographs) from which they were taken.

The book mark of the Columbia Biological Series has been changed from a mitotic figure in the metaphase to one in the anaphase, which fittingly symbolizes the passing of this work from a first to a second edition. Although one of the latest books in this field, this is the first general work on cytology to pass through a second edition. May it see still other editions,

telophases and yet other cycles of development, in the future!

EDWIN G. CONKLIN.

UNIVERSITY OF PENNSYLVANIA.

North American Forests and Forestry, Their Relations to the National Life of the American People. By ERNEST BRUNCKEN, Secretary of the late Wisconsin State Forestry Commission. New York and London, G. P. Putnam's Sons. 1900. Pp. vi + 266.

This work, which appeared early in the year, is a timely contribution to the much needed literature of forestry in North America. We have been so earnestly engaged in ridding the ground of the covering of trees which prevented us from 'planting corn to feed to hogs, to sell for money, to buy more land, to plant more corn, to feed more hogs,' etc., etc., that we have overlooked the fact that *a forest is often the best crop which a given area can produce.* With the disappearance of the great forest tracts we are learning the hard lesson that we have 'wasted our substance in riotous living,' and as the thoughtless prodigal of old finally 'came to himself' when he had spent all, so we are beginning to have different notions as to the value and importance of the heritage of trees which we so thoughtlessly wasted. This book is itself a result of this changed feeling. It is an attempt to treat the forest problems of the country as of such importance as to demand our most thoughtful consideration.

Some idea of the scope of the book may be obtained from the titles of a few of the chapters: The North American Forest, The Forest and Man, The Forest Industries, Destruction and Deterioration, Forestry and Government; Forestry and Taxation; Reform in Forestry Methods, Forestry as a Profession, etc. In the treatment of these topics the author discusses each with liberality, and is not given to urging his particular theory upon the reader's attention. In fact the book is very largely a calm discussion of forestry questions, and it is singularly free from long statements of the author's particular theories as to the proper solution of the problems in hand.

It should have a large sale throughout the country and should be found in every public